

REMARKS

Claims 17, 20-23, 26-29, 31-37, and 40-43 are pending. Claim 17 is the only independent claim. Claims 40-43 are withdrawn pursuant to the restriction requirement dated June 15, 2009.

Claims 17, 20-23, 26-29, 31-34, 36, and 37 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 3,619,181 (“Willey”) in view of U.S. Patent No. 5,620,652 (“Tack et al.”). Claim 35 also stands rejected under 35 U.S.C. § 103(a) over Willey in view of Tack et al. and further in view of Sanders et al., “Aluminum and Aluminum Alloys,” Kirk-Othmer Encyclopedia of Chemical Technology (“Sanders et al.”). Applicants respectfully request the Examiner to reconsider and withdraw these obviousness rejections in view of the following remarks and the attached Declaration Under 37 C.F.R. § 1.132 (“Declaration”).

Independent claim 17 recites “[a] cast aluminum alloy, wherein the alloy comprises 3.0-6.0 % by weight magnesium (Mg), > 1.0 - 4.0 % by weight silicon (Si), 0.01 - < 0.5 % by weight scandium (Sc), 0.05-0.15 % by weight titanium (Ti), at least 0.001 % by weight gadolinium (Gd), 0-0.05 % by weight zinc (Zn), maximally 0.15 % by weight manganese (Mn), 0 - 0.3 % by weight chromium (Cr), 0 - 1.0 % by weight copper (Cu), 0 - 0.6 % by weight iron (Fe), 0 - 0.004 % by weight beryllium (Be), the remainder being aluminum, provided that the total amount of impurities is not more than 0.5 % by weight and provided that no single impurity is present in an amount of more than 0.1 % by weight, and wherein at least one element selected from the group consisting of zirconium (Zr), hafnium (Hf), molybdenum (Mo), terbium (Tb), niobium (Nb), erbium (Er) and vanadium (V) may be present and if the at least one element is present, the at least one element in combination with gadolinium is maximally 0.5 % by weight.”

The combination of Willey and Tack et al. does not disclose or suggest the presently claimed cast aluminum alloy comprising aluminum, magnesium, silicon, scandium, titanium, and gadolinium. An obviousness determination

requires consideration of each and every claim element. See M.P.E.P. § 2143.03. As a result, the recitation “cast aluminum alloy” must be considered and the combination of Willey and Tack et al. does not provide a *prima facie* case of obviousness.

Each of Willey and Tack et al. are directed to wrought aluminum alloys. Page 6 of the Office Action states “Willey does not state that the alloy is limited to wrought alloys...” While Willey does not explicitly state it is directed to wrought aluminum alloys, one of ordinary skill in the art, reading Willey as a whole, would understand that Willey is directed to wrought aluminum alloys. Declaration at ¶ 8. Furthermore, Tack et al. also shows that one of ordinary skill in the art, reading Willey as a whole, would understand Willey is directed to wrought aluminum alloys.” Declaration at ¶ 9.

The alloys in Table III of Willey, even in combination with Tack et al., do not disclose or suggest the presently claimed cast aluminum alloy comprising aluminum, magnesium, silicon, scandium, titanium, and gadolinium. The alloys in Table III only contain aluminum and scandium. They do not contain other elements.

Furthermore, one of ordinary skill in the art would not have had a rational reason and a reasonable expectation of success in utilizing the alloying elements disclosed in Willey in the amounts disclosed in Willey in a cast aluminum alloy. Declaration at ¶ 12. A *prima facie* case of obviousness requires both a rational reason to modify or combine the elements of the prior art to arrive at the claimed invention and a reasonable expectation of success in modifying or combining the elements of the prior art to arrive at the claimed invention. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 82 USPQ2d 1385, 1396 (2007) and M.P.E.P. §2143.02. Thus, the combination of Willey and Tack et al. does not provide a *prima facie* case of obviousness.

As explained in ¶ 10 and ¶ 11 of the Declaration, cast aluminum alloys and wrought aluminum alloys are significantly different. They are made by different processes. Wrought aluminum alloys are worked by processes such

as rolling, extruding, forging, drawing, or another metal working process. In contrast, cast aluminum alloys are not subjected to subsequent rolling, extruding, forging, drawing, or another metal working process. The properties of aluminum alloys result from the processes by which they are made. Thus, the properties of cast aluminum alloys depend on their chemical composition and the casting process and the properties of wrought aluminum alloys depend on their chemical composition and the working process. As a result, one of ordinary skill in the art would not have reasonably expected utilizing the alloying elements disclosed in Willey in the amounts disclosed in Willey would produce a cast aluminum alloy with properties the same as or similar to Willey's wrought aluminum alloys. Declaration at ¶ 12.

For at least these reasons, the combination of Willey and Tack et al. does not provide a *prima facie* case of obviousness. Accordingly, withdrawal of the obviousness rejection over Willey in view of Tack et al. is respectfully requested.

In regard to dependent claim 35, the combination of Willey, Tack et al., and Sanders et al. does not provide a *prima facie* case of obviousness. Claim 35 is dependent on independent claim 17. As discussed above, the combination of Willey and Tack et al. does not disclose or suggest the presently claimed cast aluminum alloy comprising aluminum, magnesium, silicon, scandium, titanium, and gadolinium. Moreover, one of ordinary skill in the art would not have had a rational reason and a reasonable expectation of success in utilizing the alloying elements disclosed in Willey in the amounts disclosed in Willey in a cast aluminum alloy. Sanders et al. does not correct the deficiencies of Willey and Tack et al. as Sanders et al. is merely cited for disclosing zinc as recited in claim 35. See Office Action at page 5. Accordingly, withdrawal of the obviousness rejection over Willey in view of Tack et al. and Sanders et al. is respectfully requested.

In view of the foregoing, reconsideration of the claims and allowance of the subject application is earnestly solicited.

Application No. 10/579,075
Reply After Final
November 10, 2011

If there are any questions regarding this Reply or the application in general, a telephone call to the undersigned at (202) 624-2871 would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323, Docket No. 056226.57663US.

Respectfully submitted,

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